PCW_09_22 Coordinate transformations v13

Question 1

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; 6 \cdot f\left[\frac{x}{8} - 5\right] - 2$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a, b) \to (8\,(a + 5)\;,\; 6b - 2)$$

Question 2

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; \frac{f[7\,(x - 2)] + 5}{6}$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a, b) \to \left(\frac{a}{7} + 2\;,\; \frac{b + 5}{6}\right)$$

Question 3

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; \frac{f\left[\frac{x+5}{2}\right]}{4} - 6$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a, b) \to \left(2a - 5\;,\; \frac{b}{4} - 6\right)$$

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Question 4

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] = 4 \cdot (f[6x + 8] - 9)$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a, b) \rightarrow \left(\frac{a - 8}{6} \ , \ 4(b - 9) \right)$$

Question 5

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] = 5 \cdot (f[7(x + 9)] + 3)$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a, b) \rightarrow \left(\frac{a}{7} - 9 \ , \ 5(b + 3) \right)$$

Question 6

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] = 7 \cdot f\left[\frac{x}{2} + 4\right] + 8$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a, b) \rightarrow (2(a - 4) \ , \ 7b + 8)$$